

Claims

- [c1] We claim as our invention the following:
1. A golf ball having reduced susceptibility of cracking of a cover, the golf ball produced in accordance with the method comprising:
forming a golf ball precursor product having a first volume;
heating the golf ball precursor product at a predetermined temperature and for a predetermined time period to achieve a predetermined volumetric thermal expansion of the golf ball precursor product, the golf ball precursor product increasing from the first volume to a heated volume; and
applying a cover over the golf ball precursor product with the heated volume, the cover applied through an exothermic reaction.
 - [c2] 2. The golf ball according to claim 1 wherein the cover is composed of a thermosetting polyurethane material.
 - [c3] 3. The golf ball according to claim 1 wherein heating the golf ball precursor product to a predetermined temperature comprises convection heating the golf ball precursor product to a temperature within the range of about 120 ° F to about 180 ° F.
 - [c4] 4. The golf ball according to claim 1 wherein heating the golf ball precursor product to a predetermined temperature comprises convection heating the golf ball precursor product to a temperature within the range of about 140 ° F to about 160 ° F.
 - [c5] 5. The golf ball according to claim 1 wherein forming a golf ball precursor product comprises forming a core and applying at least one boundary layer over the core.
 - [c6] 6. The golf ball according to claim 1 wherein heating the golf ball precursor product to a predetermined temperature comprises microwave heating the golf ball precursor product.
 - [c7] 7. The golf ball according to claim 5 wherein the at least one boundary is a thermoplastic elastomer.

- [c8] 8.The golf ball according to claim 5 wherein the thermoplastic elastomer is an ionomer.
- [c9] 9.The golf ball according to claim 1 wherein the core is formed of a polybutadiene material.
- [c10] ~~10.~~A golf ball having reduced susceptibility of cracking of a cover, the golf ball produced in accordance with the method comprising:
forming a core comprised of a polybutadiene material;
forming a boundary layer over the core, the boundary layer composed of a blend of ionomer materials, the boundary layer and core having a first volume;
heating the boundary layer and core at a predetermined temperature and for a predetermined time period to achieve a predetermined volumetric thermal expansion of the boundary layer and core to a heated volume; and
casting a polyurethane cover over the golf ball precursor product with the heated volume, the polyurethane cover applied through an exothermic reaction.
- [c11] ~~11.~~A golf ball having reduced susceptibility of cracking of a cover, the golf ball produced in accordance with the method comprising:
compression molding a core composed of a polybutadiene material;
injection molding a boundary layer composed of an ionomer blend material around the core to form a golf ball precursor product, the golf ball precursor product having a diameter ranging from 1.630 inch to 1.644 inch;
heating the golf ball precursor product to cause volumetric thermal expansion of the golf ball precursor product to create a thermally expanded golf ball precursor product having at least a 1.29% volume increase of the golf ball precursor product;
and
applying a thermosetting polyurethane cover to the thermally expanded golf ball precursor product through an exothermic reaction involving a polyurethane prepolymer and a curing agent.
- [c12] 12.The golf ball according to claim 11 wherein the volume increase of the golf ball precursor product is between 1.3% and 2.41%.